LA CROSSE®
TECHNOLOGY

Atomic Projection Alarm
Model: 616-146A | Instruction Manual

Introduction

The Atomic Projection Alarm features radio-controlled time, indoor temperature, and moon phase on a simple, and easy to read display. Time and/or indoor temperature can be projected on a wall or ceiling. Use the integrated USB charging port to charge your will charge your smart phone, camera or other device when the Projection Alarm is plugged into a power outlet.

Atomic Projection Alarm

- Projects time & indoor temp. on wall or ceiling
- Projection rotates in 90 degree increments
- Projection options: (1) Default: toggle between time and indoor temp.,
  (2) time only, or (3) indoor temperature only
- Time zones: Atlantic Time (AST), Eastern Time (EST), Central Time (CST), Mountain Time (MST),
  Pacific Time (PST), Alaskan Time (AKT) & Hawaiian Time (HAT)
- Light up display backlight with a press of a button using battery power OR continuous light with AC
  adapter (ON /OFF option)
- Backlight settings: High, Low and Off
- Charge devices with USB charging port: Output 0.5A
- Atomic time and date sets itself
- 12/24 hour time with minutes
- Snooze alarm and alarm icon
- Calendar: day, date
- IN temperature (°F / °C) with trend arrow
- Moon Phase
- Low battery icon for clock
- Sits on desktop or tabletop
- 5.0V AC adapter (included) for primary power and battery backup
- Battery life is over 24 months when using the AC adapter

Initial Setup

1. Insert A/C adapter into the wall outlet then into the display **or** insert 2 AAA batteries (not included)
   into the display (**see Power the Atomic Projection Alarm).** The Atomic Projection Alarm will light up
   and display time and indoor temperature.

IMPORTANT: When operating on a/c power, the backlight, projection and USB charging port will turn off
while the Projection Alarm searches for the WWVB signal, to avoid interference. The backlight and
projection will return after the 2-10 minute search. Then the USB charging port will resume working.

- **Do Not Mix Old and New Batteries**
- **Do Not Mix Alkaline, Standard, Lithium or Rechargeable Batteries**

Power the Atomic Projection Alarm

The Projection Alarm can be powered by the 5-volt a/c adapter or by 2 AAA batteries.

A/C power adapter:
- Insert enclosed 5-volt a/c power adapter into a wall outlet, then into the Atomic Projection Alarm.
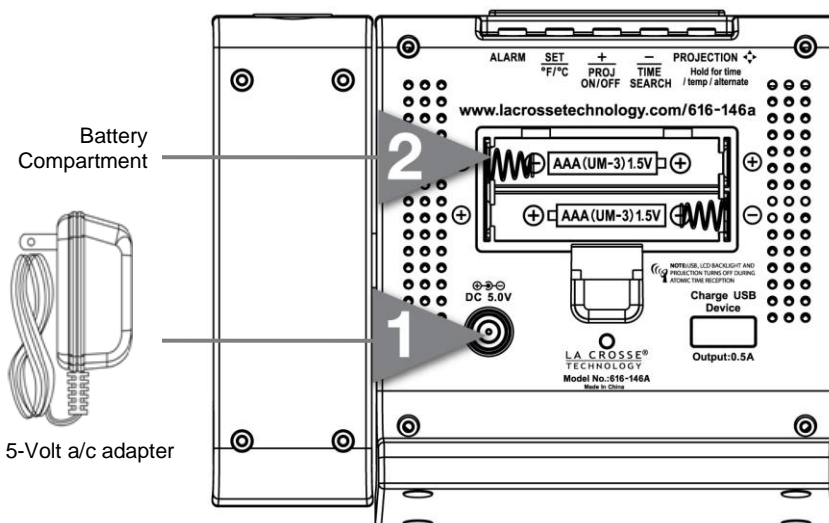
1. Remove battery cover: Slide tab to the up and pull out to remove battery cover.
2. Install two fresh AAA batteries according to the polarity markings.
- **Do Not Mix Old and New Batteries**
- **Do Not Mix Alkaline, Lithium, Standard, or Rechargeable Batteries**

If the Atomic Projection Alarm does not display indoor temperature after 60 seconds, remove adapter and batteries, and wait for at least 60 seconds before repeating the setup process.

IMPORTANT: When operating on a/c power, the backlight, projection and USB charging port will turn off while the Projection Alarm searches for the WWVB signal, to avoid interference. The backlight and projection will return after the 2-10 minute search. Then the USB charging port will resume working.

WWVB Radio-controlled Time

The NIST radio station, WWVB, is located in Ft. Collins, Colorado and transmits the exact time signal continuously throughout the United States at 60 kHz. The signal can be received up to 2,000 miles away through the internal antenna in the Atomic Projection Alarm. However, due to the nature of the Earth's Ionosphere, reception is very limited during daylight hours. The Atomic Projection Alarm will search for a signal every night when reception is best. The WWVB radio station derives its signal from the NIST Atomic Clock in Boulder, Colorado. A team of atomic physicists continually measures every second of every day to an accuracy of ten billionths of a second a day. These physicists have created an international standard, measuring a second as 9,192,631,770 vibrations of a Cesium 133 atom in a vacuum. This atomic clock regulates the WWVB transmitter.

WWVB Reception Icon

A Tower with full signal strength will appear on screen in front of the date when the reception of atomic time is successful.
- The tower icon will show solid when the display has received the WWVB signal.
- No tower icon displayed. The display was unable to receive a signal at this time.
- Reposition the display for better signal reception or try again at bedtime.
- The display will start searching at UTC: 07:00 and if no reception on the first attempt they will try again at 08:00, 09:00 and 10:00. Each attempt will be at least 2 minutes and the most will be 10 minutes.
- If there is no signal or too much interference the receiver will only be on for 2 minutes.
- If the signal is good it may catch a signal in ABOUT 2-3 minutes.
- If the signal is marginal it will try to catch a signal for up to 10 minutes.

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Note: In case the Atomic Projection Alarm is not able to detect the WWVB-signal (disturbances, transmitting distance, etc.); the time may be manually set.
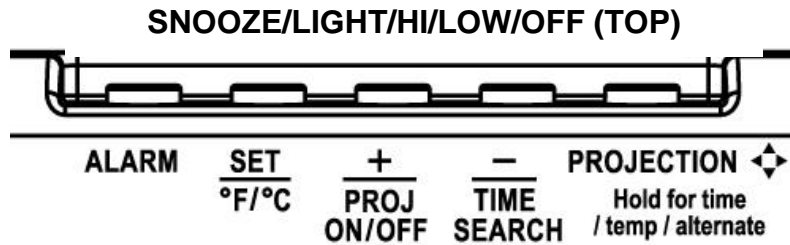
Manual Signal Search:

In normal mode, hold the RCC button until the reception icon appears to force a search of the WWVB signal. The WWVB icon will flash during the search. If this icon disappears after the 2-minute search, the radio time signal is not available at the moment.

- Recommended distance to any interfering sources like computer monitors or TV sets is a minimum of 6 feet (2 meters).
- Within ferro-concrete rooms (basements, superstructures), the received signal is naturally weakened. In extreme cases, please place the unit close to a window and/ or point its front or back towards the Fort Collins, Colorado, transmitter.
- During nighttime, the atmospheric disturbances are usually less severe and reception is possible in most cases. A single daily reception is adequate to keep the accuracy deviation below 1 second.

Note: In case the atomic Projection Alarm is not able to detect the WWVB-signal (disturbances, transmitting distance, etc.), the time and date can be manually set (see "**program menu**").

SNOOZE/LIGHT/HI/LOW/OFF (TOP)

ALARM SET + − PROJECTION
°F/°C PROJ TIME Hold for time
ON/OFF SEARCH / temp / alternate

Button	Press and Release Functions	Hold 3 seconds
SET/°F/°C	Move through program menu (setup) Select temperature in °F/°C	Enter program menu, Set time, date, etc. (setup)
ALARM	**Once**: View Alarm **Twice:** Activate or Deactivate Alarm	Alarm set
+/PROJ ON/OFF	1 step forward (setup)	Fast advance (setup) Turn Projection ON/OFF
-/TIME SEARCH	1 step backward (setup)	Fast backward (setup) WWVB Search
PROJECTION	Rotate Projection 90 degrees	Change what is projected: Time/Indoor Temp alternating (default) **Once**: Time only **Twice:** Indoor Temp only **Third time:** Time/Outdoor Temp alternating (default)
SNOOZE/LIGHT HI/LOW/OFF	**Once**: Backlight low (a/c) **Twice**: Backlight OFF (a/c) **3rd time**: Backlight ON (a/c) **Activate** backlight/projection 10 seconds (battery power) **Trigger snooze** (alarm active)	

The **SET/°F/°C button** will move through the items in the program menu. The +/PROJ ON/OFF or -/TIME SEARCH buttons will change these values.

- WWVB reception ON or OFF
- Time Zone (Seven Time Zones)
- Daylight Saving Indicator
- 12/24 hour time format
- Manual time set (Hour, Minutes)
- Calendar set (Year, Month, Date)

The WWVB time reception defaults to ON. To turn the WWVB reception OFF:

1. Hold the SET/°F/°C button for 5 seconds.
2. **WWVB** and **ON** will flash.
3. Press and release the +/PROJ ON/OFF or -/TIME SEARCH buttons to turn this OFF.
4. Confirm with the SET/°F/°C button and move to the **Time Zone**.

ON **WWVB**

This station offers seven time zones listed in letter format (default is EST):
- AST Atlantic Time
- EST Eastern Time
- CST Central Time
- MST Mountain Time
- PST Pacific Time
- AKT Alaskan Time
- HAT Hawaiian Time

TIME ZONE **EST**

1. **EST** will flash.
2. Press and release the +/PROJ ON/OFF or -/TIME SEARCH buttons to select a different Time Zone.
3. Confirm with the SET/°F/°C button and move to **Daylight Saving Indicator**.

Daylight Saving Indicator:

DST will default to the ON position as most of the country observes the DST change. If you live in an area does not observe the DST change, switch this to the OFF position.

ON

1. **DST** and **ON** will flash.
2. Press and release the +/PROJ ON/OFF or -/TIME SEARCH buttons to turn DST to OFF.
3. Confirm with the SET/°F/°C button and move to **12/24 hour time format**.

DST

12 or 24-hour Time

The Time may be displayed in 12-hour or 24-hour format. Default is 12-hour time.
Note: When in 12-hour format AM or PM will show in front of the hour.

12H

1. **12H** will flash.
2. Press and release the +/PROJ ON/OFF or -/TIME SEARCH buttons to select 24-hour time.
3. Confirm with the SET/°F/°C button and move to **Set Time**.

Set Time:

To set the time manually:

1. The **hour** digit will flash.
2. Press and release the +/PROJ ON/OFF or -/TIME SEARCH buttons to select the hour.
3. Press and release the **SET/°F/°C button** to set the **minutes**.
4. The **minute's** digit will flash.
5. Press and release the +/PROJ ON/OFF or -/TIME SEARCH buttons to select the minutes.
6. Confirm with the **SET/°F/°C button** and move to **Set Calendar**.

Set Calendar:

The date default of the Atomic Projection Alarm is 1. 1. 2010.
To set the calendar:
1. The **year** will flash.
2. Press and release the +/PROJ ON/OFF or -/TIME SEARCH buttons to set the year (between year 2010-2039).
3. Press the **SET/°F/°C button** again to confirm and to enter the **month** setting.
4. The **month** will flash.
5. Press and release the Press and release the +/PROJ ON/OFF or -/TIME SEARCH buttons to set the month.
6. Press the **SET/°F/°C button** again to confirm and enter **date** setting.
7. The **date** will flash.
8. Press and release the +/PROJ ON/OFF or -/TIME SEARCH buttons to set the date.
9. Confirm all calendar settings with the **SET/°F/°C button** to confirm and **exit** the program menu.

TUE 10/27

2010

1M.1D

Note: The day of the week will set automatically once the year, month and date are set.
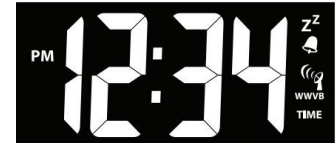
1. Press and release the **SET/°C/°F** button once to switch from Fahrenheit to Celsius.

Alarm Set:

Hold the ALARM button for 5 seconds to enter the alarm time set mode.
1. The alarm **hour** digit will flash.
2. Press and release the +/PROJ ON/OFF or -/TIME SEARCH buttons to select the hour.
3. Press and release the **SET/°F/°C button** to set the minutes. The **minute** digits will flash.
4. Press and release the +/PROJ ON/OFF or -/TIME SEARCH buttons to select the minutes.
5. Confirm with the **SET/°F/°C button** and exit.
6. The alarm icon 🔔 will show after the minutes indicating the alarm is **active**.
7. The alarm icon 🔔 will flash when the alarm is sounding.

Deactivate Alarm:

1. Press and release the ALARM button once to show Alarm Time.
2. Press and release the ALARM button to **deactivate** the Alarm. The 🔔 alarm icon will disappear indicating the alarm is no longer active.

Snooze

1. When the alarm sounds, press the SNOOZE/LIGHT button to trigger snooze alarm for 10 minutes. The snooze icon **Zz** will flash when the snooze feature is active.
2. To stop alarm for one day, press ALARM button, while in snooze mode. The alarm icon 🔔 will remain solid.
    Note: When the alarm sounds, it continues for 2 minutes and then shuts off completely.

Temperature Trend Arrows:

The indoor temperature trend indicators are updated every 30 minutes. These trends represent temperature changes over the past three hours.

- ⌇ Temperature rising more than 2°F /1°C in the past three hours
- → Temperature has **not changed** more than 2°F /1°C in the past three hours
- ⌇ Temperature falling more than 2°F /1°C in the past three hours

The temperature trend indicators are shown next to the indoor temperature readings.

Projection

Battery Power:

Press and release the SNOOZE/LIGHT button to show the projection for 10 seconds.
Note: Projection will not display constantly when operating on battery power.

A/C Power:

Projection is displayed constantly unless turned off.
- **OFF**: Hold the +/PROJ ON/OFF button to turn the projection OFF while operating on a/c power.
- **ON:** Hold the +/PROJ ON/OFF button to turn the projection ON while operating on a/c power.

- **Rotate Projection**: Press and release the PROJECTION button to rotate projection image 90 degrees. Press and release the PROJECTION button again to rotate another 90 degrees.

- **Change Projection Mode**: Hold, then release the PROJECTION button to switch projection modes. Watch the projection image to view the changes.

- o Time and Indoor Temperature: alternate every 5 seconds (default)
- o Time: Hold and release PROJECTION button

Note: Both Time and Indoor Temperature will not show at the same time

Projection Arm Rotation: The projection arm can be rotated 180 degrees to view the projection on the wall or ceiling.

Backlight Intensity

Press and release the SNOOZE/LIGHT button to adjust the brightness of the backlight:

A/C Power

The backlight is displayed constantly unless turned off.
- **ON High intensity:** The backlight is defaulted to HI when the Adapter is in use.
- **ON Low intensity:** Press and release SNOOZE/LIGHT button once
- **OFF**: Press and release SNOOZE/LIGHT button
- **ON**: Press and release SNOOZE/LIGHT button again
- **Note:** When the Adapter is NOT in use, the High/Low/On/Off features are not available.

Battery Power

- Press the SNOOZE/LIGHT button to display the backlight for 10 seconds.

USB Charge Port

The integrated USB charging port (on back) will charge your smart phone, camera or other device when the Projection Alarm is plugged into a power outlet.
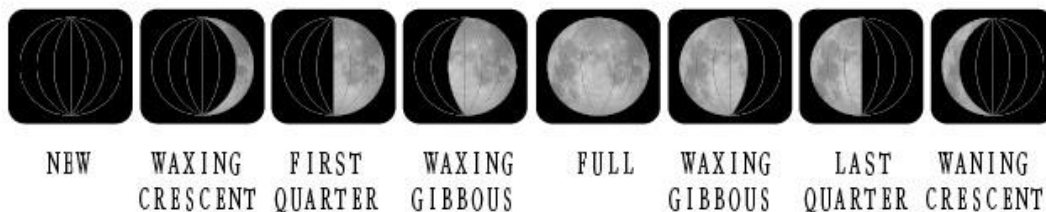**Note:** This is a power output (charging) port only. This port will **not** supply power to the Projection Alarm.

- Connect your existing USB charging cord for your external device to the USB charging port on the back of the Projection Alarm to begin to charge. Charging times will vary.
- **Note: Check that your device will charge with the USB cord it came with.** *Many USB cords are for data transfer only, and cannot be used for charging.*
- **Output**: 0.5A maximum current USB.
- Do NOT overload USB port.

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Moon Phase

The eight phases of the moon shown below are determined by the year, month, and date set on the Atomic Projection Alarm.

| NEW | WAXING CRESCENT | FIRST QUARTER | WAXING GIBBOUS | FULL | WAXING GIBBOUS | LAST QUARTER | WANING CRESCENT |

New Moon occurs when the moon is between the earth and sun so the illuminated portion of the moon is on the back side facing the sun and we cannot see it. After a new moon the illuminated portion will increase or wax until the full moon occurs.

Full Moon occurs when the earth, moon, and sun are in approximate alignment, with the moon and the sun on opposite sides of the earth. The illuminated portion of the moon faces the earth, giving us complete visibility of one side of the entire moon. After a full moon the illuminated portion will decrease or wane until the new moon occurs.

First Quarter and **Last Quarter** moons occur when the moon is at a 90 degree angle to the earth and sun. So we see half of the moon illuminated and half is in shadow.

Waxing means growing or expanding illumination and happens after a new moon.

Waning means decreasing illumination and occurs after a full moon.

Crescent refers to the moon being less than half illuminated. Crescents can be waning or waxing.

Gibbous describes a moon phase when more than half is illuminated. Gibbous can be waxing or waning.

Note: With the moon shown against a light colored background, the phases will show opposite to a paper calendar. The segments that are highlighted will portray the part of the moon that is lit. For instance, the moon will be blank during a new moon and dark during a full moon.

Position the Atomic Projection Clock

1. The Atomic Projection Alarm has a wide base to sit on a desk or table.
2. Choose a location 6 feet or more from electronics such as cordless phones, gaming systems, televisions, microwaves, routers etc.
3. For best WWVB reception orientate the Atomic Projection Alarm with the front of the back facing Ft. Collins Atomicado.

Care and Maintenance

- **Do Not Mix Old and New Batteries**
- **Do Not Mix Alkaline, Standard, Lithium or Rechargeable Batteries**
- Do not expose the Atomic Projection Alarm to extreme temperatures, vibration or shock.
- Keep Atomic Projection Alarm dry.
- Clean the Atomic Projection Alarm with a soft damp cloth. Do not use solvents or scouring agents.
- The Atomic Projection Alarm is not a toy. Keep it out of reach of children.
- The Atomic Projection Alarm is not to be used for medical purpose or for public information, but is determined for home use only.
- The specifications of this Atomic Projection Alarm may change without prior notice.
- Improper use or unauthorized opening of housing will void the warranty.
- If the unit does not work properly, change the batteries and/or check the a/c cord connection.

Specifications

Indoor:

Temperature Range:	+32°F to +122°F (0°C to 50°C)
Accuracy:	+/- 2 degrees Fahrenheit
Interval:	About every 30 seconds

Power:

Atomic Projection Alarm:	5-volt a/c power adapter (included) Optional 2-AAA, IEC, LR3 batteries (not included)
USB:	Output 0.5 Amp maximum. Do not overload USB port.

Battery Life:

Atomic Projection Alarm Battery Backup:	Battery life is over 24 months when using the AC adapter for primary power

DIMENSIONS:

Atomic Projection Alarm:	5.23" W x 4.33" H x 1.96" D (133 x 110 x 50mm)

Accuracy

INDOOR TEMPERATURE:

- Operating temperature range = 32 F to 122 F (0C to 50C)
- Accuracy ± 2 degrees Fahrenheit 32 F to 122 F (0C to 50C)
- Resolution = 0.1 degree F

Warranty Information

La Crosse Technology, Ltd provides a 1-year limited warranty on this product against manufacturing defects in materials and workmanship.

This limited warranty begins on the original date of purchase, is valid only on products purchased and used in North America and only to the original purchaser of this product. To receive warranty service, the purchaser must contact La Crosse Technology, Ltd for problem determination and service procedures. Warranty service can only be performed by a La Crosse Technology, Ltd authorized service center. The original dated bill of sale must be presented upon request as proof of purchase to La Crosse Technology, Ltd or La Crosse Technology, Ltd's authorized service center.

La Crosse Technology, Ltd will repair or replace this product, at our option and at no charge as stipulated herein, with new or reconditioned parts or products if found to be defective during the limited warranty period specified above. All replaced parts and products become the property of La Crosse Technology, Ltd and must be returned to La Crosse Technology, Ltd. Replacement parts and products assume the remaining original warranty, or ninety (90) days, whichever is longer. La Crosse Technology, Ltd will pay all expenses for labor and materials for all repairs covered by this warranty. If necessary repairs are not covered by this warranty, or if a product is examined which is not in need or repair, you will be charged for the repairs or examination. The owner must pay any shipping charges incurred in getting the La Crosse Technology, Ltd product to a La Crosse Technology, Ltd authorized service center. La Crosse Technology, Ltd will pay ground return shipping charges to the owner of the product to a USA address only.

The La Crosse Technology, Ltd warranty covers all defects in material and workmanship with the following specified exceptions: (1) damage caused by accident, unreasonable use or neglect (including the lack of reasonable and necessary maintenance); (2) damage occurring during shipment (claims must be presented to the carrier); (3) damage to, or deterioration of, any accessory or decorative surface; (4) damage resulting from failure to follow instructions contained in the owner's manual; (5) damage resulting from the performance of repairs or alterations by someone other than an authorized La Crosse ^{Printed in China} Technology, Ltd authorized service center; (6) units used for other than home use (7) applications and uses that this product was not intended or (8) the products inability to receive a signal due to any source of interference.. This warranty covers only actual defects within the product itself, and does not cover the cost of installation or removal from a fixed installation, normal set-up or adjustments, claims based on misrepresentation by the seller or performance variations resulting from installation-related circumstances.

LA CROSSE TECHNOLOGY, LTD WILL NOT ASSUME LIABILITY FOR INCIDENTAL, CONSEQUENTIAL, PUNITIVE, OR OTHER SIMILAR DAMAGES ASSOCIATED WITH THE OPERATION OR MALFUNCTION OF THIS PRODUCT. THIS PRODUCT IS NOT TO BE USED FOR MEDICAL PURPOSES OR FOR PUBLIC INFORMATION. THIS PRODUCT IS NOT A TOY. KEEP OUT OF CHILDREN'S REACH.

This warranty gives you specific legal rights. You may also have other rights specific to the State. Some States do not allow the exclusion of consequential or incidental damages therefore the above exclusion of limitation may not apply to you.

For warranty work, technical support, or information contact:
La Crosse Technology, Ltd
2817 Losey Blvd. S.
La Crosse, WI 54601

The complete instruction manual is available at:
www.lacrossetechnology.com/616-146a

Contact Support: 1-608-782-1610

Product Registration:
www.lacrossetechnology.com/support/register

Protected under U.S. Patents:
5,978,738
6,076,044
6,597,990

FCC Disclaimer

This Device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) the device must accept any interference received, including interference that may cause undesired operation.

NOTE: THE MANUFACTURER IS NOT RESPONSIBLE FOR ANY RADIO OR TV INTERFERENCE CAUSED BY UNAUTHORIZED MODIFICATIONS TO THIS EQUIPMENT. SUCH MODIFICATIONS COULD VOID THE USER AUTHORITY TO OPERATE THE EQUIPMENT